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LONGTIME GEOCHEMICAL EVOLUTION OF Cd-Pb-Zn DISTRIBUTION IN DEPOSITED ATTIC DUST

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Attic dusts were examined as historical archives of anthropogenic emissions, with the aim of elucidating the pathways of pollution associated with a hydrothermal exploitation of Cu, Pb and Zn minerals in the eastern part of the Republic of Macedonia, the Bregalnica river basin region. Samples were collected from 84 settlements. Atomic emission spectrometry and mass spectrometry with inductively coupled plasma were applied as analytical techniques for determination of the Cd, Pb and Zn content in attic dust and soil samples. The anthropogenic affects on the air pollution was marked with dominance of these elements contents. Enriched contents of Cd, Pb and Zn were also determined in areas with dominant occurrence of the very old Rifeous shales. These elements distribution also presents a very unique association that despite the heterogenisity relays on natural phenomena of tracking the deposition in areas of Proterozoic gneisses; related to the distribution of fine particles associated with carbonate-silicate volcanic rocks. Intensive poly-metallic dust depositions were determined only in the surroundings of the localities where the hydrothermal extractions are implemented. Long-time deposition can be considered as pollution indexes for these hot spots. This mainly affect the Cd, Pb and Zn deposition that riches to 25, 3900, and 3200 mg/kg, respectively.

Key words: attic dust, lithogenic distribution, anthropogenic geochemical marker; air pollution